

Weed control with soil applied atrazine tank mixes in corn at Lamberton, MN in 2003. Getting, Jodie K. and Bruce D. Potter. The objective of this study was to evaluate soil applied atrazine premixes for annual grass and annual broadleaf weed control in corn. This study was conducted on a Normania loam soil containing 4.7% organic matter, pH 5.8 and soil test P and K levels of 36 and 272 lb/A, respectively. A randomized complete block design with four replications and a plot size of 10 by 30 ft was used. The site was planted to soybeans in 2002 and was fall chiseled. The area was fertilized with 120 lb/A of nitrogen as anhydrous ammonia. On May 2, 2003, Dekalb 'DKC 53-34RR' glyphosate resistant field corn was planted in 30-inch rows at a seeding rate of 33,000 seeds/A. Cyfluthrin + tebupirimphos (Aztec 2.1G) was applied at 6.7 oz/1000 row feet in a T-band for the control of northern corn rootworm larvae. All treatments were applied with a tractor-mounted sprayer delivering 20 gpa at a pressure of 40 psi. The sprayer was equipped with 8002 flat-fan nozzles spaced 15 inches apart on the boom. Application dates, environmental conditions, plant sizes and rainfall data are listed below:

Date	May 2	June 3
Treatment	PRE	POST
Temperature (F)		
air	48	61
soil (4 inch)	48	64
Relative humidity (%)	32	63
Wind (mph)	calm	calm
Sky	clear	clear
Soil moisture	dry	dry
Corn		
leaf no.	-	4-collar
height (inch)	-	5
Green foxtail		
leaf no.	-	2 to 4
height (inch)	-	2 to 4
no./ft ²	-	53
Common lambsquarters		
leaf no.	-	2 to 5
height (inch)	-	1 to 3
no./ft ²	-	4
Tall waterhemp		
leaf no.	-	2 to 4
height (inch)	-	0.25 to 1
no./ft ²	-	13
Rainfall after application (inch)		
1 week	1.07	1.24
2 week	1.15	0.01
3 week	0.50	2.59

Early season crop development was delayed due to a June 23 hailstorm. The precipitation received in July and August was below average with a total of 2.96 inches compared to the historical average of 7.07 inches. None of the herbicide treatments caused visible crop injury. In August, the PRE only treatments gave 70 to 89% green foxtail control. The PRE/POST treatments gave 91 to 92% green foxtail control, 94 to 96% common lambsquarters control, and 95 to 97% tall waterhemp control. [S-metolachlor & CGA-154281] and [acetochlor & MON 4660] provided 81 and 85% common lambsquarters control, respectively. All other herbicide treatments had 90% or greater control. [S-metolachlor & CGA-154281] and [s-metolachlor & atrazine & CGA-154281] gave 80 and 84% tall waterhemp control, respectively. All other herbicide treatments had 90% or greater control. (Southwest Research and Outreach Center, University of Minnesota, Lamberton).

Table. Weed control with soil applied atrazine tank mixes in corn at Lamberton, MN in 2003 (Getting and Potter).

Treatment ^a	Rate	SETVI				CHEAL				AMATU				Yield (bu/A) ^b
		5/28	6/13	6/27	8/28	5/28	6/13	6/27	8/28	5/28	6/13	6/27	8/28	
Preemergence	(lb/A or %)	-----(% control)-----												
[S-meto&atra&meso&CGA-154281]	[2.0&0.75&0.2]	97	96	90	84	98	98	98	95	98	98	97	95	154
[S-meto&atra&CGA-154281]	[1.67&1.33]	93	92	85	77	98	97	95	93	97	93	89	84	155
[Acetochlor&atrazine&MON 4660]	[2.1&0.85]	95	94	88	82	98	97	97	96	98	98	97	95	143
[Flufenacet&isoxaflutole]	[0.45&0.094]	92	91	90	85	98	98	98	96	98	98	97	96	153
[Acetochlor&atrazine]	[2.2&0.8]	94	94	89	82	98	98	97	95	97	98	97	97	161
[Acet&Atra]+[Flms&Clpy]	[2.2&0.8]+[0.035&0.094]	95	96	90	86	98	98	98	97	98	98	97	97	156
[Acet&Atra]+isoxaflutole	[1.1&0.4]+0.094	97	95	93	89	98	98	98	97	98	98	97	97	170
[Flufenacet&metribuzin]+[Flms&Clpy]	[0.78&0.2]+[0.035&0.094]	87	85	82	70	97	97	95	95	97	97	91	90	140
[Dimt-P&Atra]	[1.0&1.2]	95	93	88	77	98	96	94	90	98	98	97	97	143
[Acet&Atra] ¹	[2.5&1.2]	93	90	86	75	97	97	94	93	98	97	97	96	148
[S-meto&meso&CGA-154281]	[2.0&0.2]	93	88	80	71	98	98	98	96	98	98	98	96	149
[S-meto&meso&CGA-154281]+Sima	[2.0&0.2]+1.0	93	86	81	70	98	98	98	96	98	98	97	95	154
[S-meto&CGA-154281]	1.91	95	88	83	73	96	94	86	81	97	95	86	80	141
[Acet&MON 4660]	2.2	97	93	89	79	97	95	90	85	98	98	95	96	152
Preemergence/POST (2 to 4-inch weeds)														
[S-meto&CGA-154281]/Glyt+AMS	0.96/0.56+2.5	86	100	95	91	92	100	98	94	97	100	98	95	170
[Acet&MON 4660]/Glyt ¹ +AMS	0.98/0.75+2.5	92	98	97	92	97	99	98	96	97	99	98	97	171
Checks														
Weedy check		0	0	0	0	0	0	0	0	0	0	0	0	39
Weed-free		100	100	100	100	100	100	100	100	100	100	100	100	166
	LSD (0.10)	3.8	4.2	5.3	8.9	2.1	3.1	5.2	8.0	1.0	1.6	3.7	5.2	12.4

^a [Acet&MON 4660] or [acetochlor & MON 4660] = Harness 7E; [Acet&Atra] or [acetochlor & atrazine] = Keystone LA 5.5SE; [Acet&Atra]¹ = Degree Xtra 4.04 ME; [acetochlor&atrazine&MON 4660] = Harness Xtra; [Dimt-P&Atra] = G-Max Lite 5SC; [flufenacet&isoxaflutole] = Epic 58WDG; [flufenacet&metribuzin] = Axiom 68DF; [Flms&Clpy] or [flumetsulam & clopyralid] = Hornet 68.5WDG; Glyt or glyphosate = Touchdown KPMG; Glyt¹ or glyphosate¹ = Roundup Weathermax 4.5L; isoxaflutole = Balance Pro 4SC; Sima or simazine = Princep 4L; [s-meto&CGA-154281] or [s-metolachlor & CGA-154281] = Dual II Magnum 7.64EC; [s-meto&meso&CGA-154281] = Camix 3.67 SE; [s-meto&atra&CGA-154281] or [s-metolachlor & atrazine & CGA-154281] = Bicep Lite II Magnum; [s-meto&atra&meso&CGA-154281] or [s-metolachlor & atrazine & mesotrione & CGA-154281] = Lumax 3.95L; AMS = spray grade ammonium sulfate.

^b Yield adjusted to 15.5% moisture.